Project Code and Title

B.02.02.07 Motorcycle Safety

Project Objective

To increase the understanding of the relationships between deaths and injuries of motorcyclists and others involved in motorcycle crashes and the driver and passenger (including driver capabilities and equipment worn by the driver and passenger)/ vehicle/ environment conditions that contribute to these crashes.

To encourage, by research, publication, and perhaps partially by regulation, changes of the driver/vehicle/environment that would reduce deaths and injuries in motorcycle crashes

Background

Although deaths of motorcycle occupants in motorcycle crashes have declined in recent years, motorcyclists are more likely to be killed than passenger car occupants (in police reported crashes). They are also more likely to be injured. In the five year period from 1985-1989, motorcycle registration declined 23 percent to 4,218,985, and new motorcycle sales declined 58 percent, to 235,000. The Motorcycle Industries Council, Inc., reports that the average age of registered motorcycle drivers increased from 24.0 years in 1980 to 27.7 years in 1985, with the expectation that this trend has continued, along with some increasing helmet use (required of all riders in 22 states and of young riders - usually those under age 18 - in 25 additional states.) In states with helmet laws, helmet use observed on the roads is near 95 percent; in states without helmet laws, road use of helmets is near 40 percent.

Problem Definition

The conditions of motorcycle hazard need to be reevaluated, comparing the Hurt et al study emphasizing causes and prevention possibilities to the literature since that study and data of the Maryland Motorcycle Injury and Data Linkage Study, available but not yet interpreted in terms of causation and possible prevention. Analyses of data presented in reports based on studies of injury patterns abroad will be compared with results of in-house research. An internal study could be followed by a grant to some outside organization to expand the results.

Research Approach

- Review the Hurt Report, tabulate the crash cause factors and countermeasures presented. Identify from NASS, FARS, State Accident Files, and literature searches the current crash cause factors. Determine if any correlation between them exists and present the current trends and present status of these cause factors and countermeasures.

- Use the Maryland Motorcycle Crashes 1987-88 Data Tape to update the Hurt et al study, with further literature review of countermeasures, such as the inflated suit concept (inflation triggered by a crash) - which we understand is now commercially available in France and Canada, the motorcycle air bag work of England and Germany, the English and Japanese crash bar developments (SAE 900755: Research History of Motorcycle Leg Protection, by Shinichi Sakamoto), and the unified (single control) front and back braking system. Recommend approach for possible future research.

- Review results of work by members of ISO Committee on Motorcycle Safety.

Potential Impact/Application

The proposed tasks will identify injury trends and recommend possible safety improvements.

Key Milestones

William T. Hollowell, Chief, Safety Systems Engineering and Analysis, is representing NHTSA on an ISO Committee on Motorcycle Safety. Through his work with that Committee, R&D became aware of a study being conducted by Dr. Alexander Sporner of HUKVerband (Munich, Germany). Dr. Hollowell and Cathy McCullough met with Dr. Langweider of HdV to discuss results of study conducted conducted by Dr. Alexander Sporner. Dr. Langweider indicated he and Dr. Sporner are willing to provide us with a copy of their database in electronic format for our own analysis. A preliminary (100 observations) D-BASE file was received in May 1996 along with a copy of the Users Manual -- both in German. Staff and contractor staff are working to do some preliminary analyses.

RESOURCE REQUIREMENTS	FY96	FY	FY	FY	FY
Contract Money ($K)	50				

Project Manager(s)

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Completion Date

September 30, 1996

Keywords: Motorcycle Helmets, FMVSS 218, Countermeasures

Project Tasks

Task	**Title and Description**
Task 1	Literature Review
Task 2	Review Hurt Report
Task 3	Identify Trends/Status of Countermeasures
Task 4	Review Maryland Motorcycle Tape
Task 5	Review report on study conducted by Dr. Alexander Sporner of HUKVerband
Task 6.	Upgrade of FMVSS No. 218

Task	**Start Date**	**Projected Completion Date**	**Status/Responsibility**
1	8/91	11/91	Completed - Inhouse Staff
2	10/91	2/92	Completed - Inhouse Staff
3	1/93	TBD	Delayed - Inhouse Staff & Contractor
4	12/91	11/92	Completed - Inhouse Staff & Contractor
5	5/96	TBD	Ongoing - Inhouse Staff
6	8/95	TBD	Ongoing - Inhouse Staff

Supporting Contracts

Task	Contract Number	COTR (phone)	Contracting Officer (phone)	Total Contract Cost ($K)
3	DTNH22-93-D-07254	Cathy McCullough 202-366-4734		
4	DTNH22-88-C-07116	Cathy McCullough 202-366-4734		